Proposed Product Category for Biobased Categorization

The following biobased product information has been collected to support product category desgination by USDA for the BioPreferred program. This summary reflects data available as of August 1, 2008.

Title: Inks-Sheetfed (Color)

Description: Sheetfed color inks are used on coated and uncoated paper, paperboard, some plastic, and foil to print in color on annual reports, brochures, labels, and similar materials.

Title: Inks-Sheetfed (Black)

Description: Sheetfed black inks are used on coated and uncoated paper, paperboard, some plastic, and foil to print in black on annual reports, brochures, labels, and similar materials.

Companies Supplying Product Category: 17 companies supplying Inks - Inks (Sheetfed) have been identified through internet searches, manufacturer's directories, trade associations, and company submissions.

Industry Associations Investigated: The following industry associations have been investigated for member companies supplying Inks - Inks (Sheetfed):

- United Soybean Board Association
- National Corn Growers Association
- Canadian Printing Ink Manufacturers' Association
- Pacific Printing and Imaging Association

Commercially Available Products Identified: Of the companies identified, 53 Inks - Inks (Sheetfed) are commercially available on the market.

Product Information Collected: Specific product information including company contact, intended use, biobased content, and performance characteristics have been collected on 38 Inks - Inks (Sheetfed).

Industry Performance Standards: Product information submitted by biobased manufacturers and suppliers indicate that have typically been tested to the following industry standards:

- None found

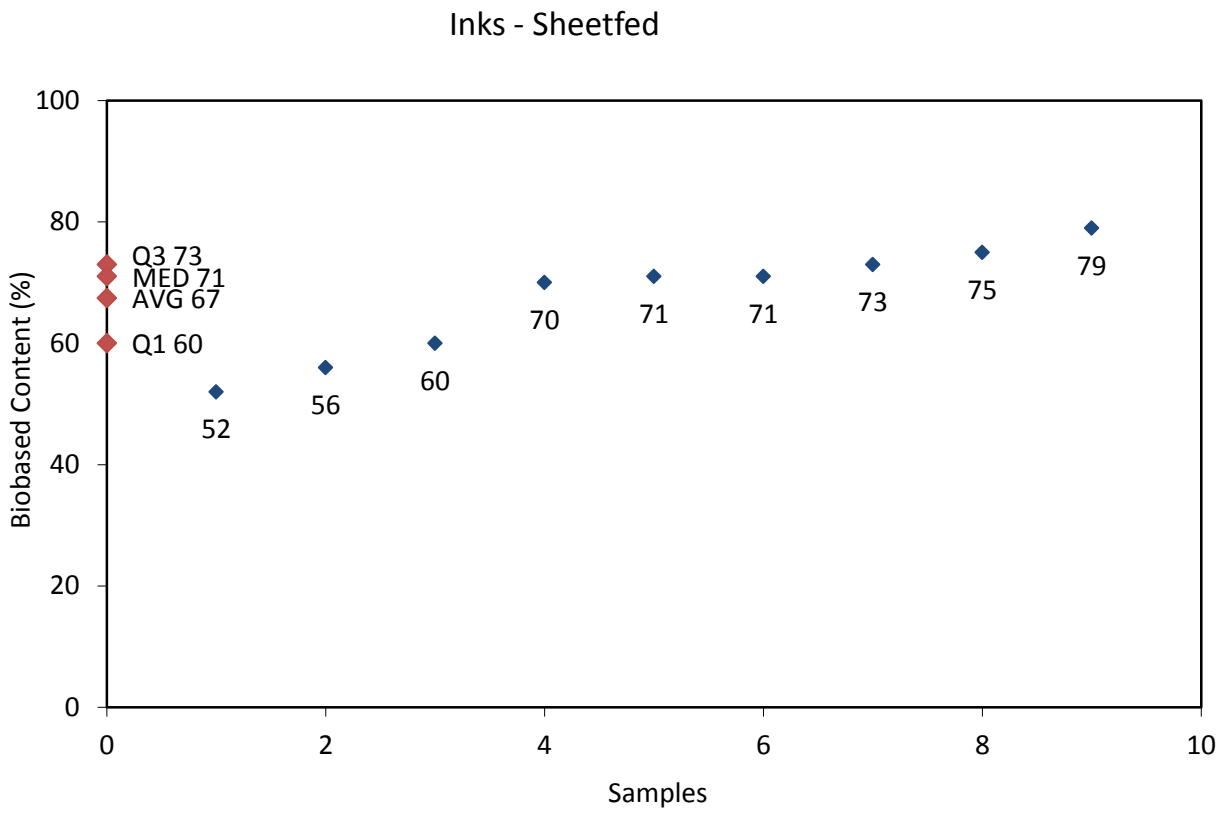
Samples Tested for Biobased Content: 9 samples of Inks - Inks (Sheetfed) have been submitted to independent laboratories for biobased content testing as specified by ASTM standard D6866-04.

Biobased Content Data: Results from biobased content testing of Inks - Inks (Sheetfed) indicate a range of content percentages from 52% minimum to 79% maximum biobased content as defined by ASTM D 6866-04. A detailed distribution of biobased content levels is included as Appendix A.

Products Submitted for BEES Analysis: Life-cycle cost and environmental effect data for 2 Inks - Inks (Sheetfed) have been submitted to NIST for BEES analysis.

BEES Analysis: The life-cycle costs of the submitted Inks - Inks (Sheetfed) range from $4.25 minimum to $8.35 maximum per usage unit. The environmental scores range from 0.0066 minimum to 0.0244 maximum. A detailed summary of the BEES results is included as Appendix B.

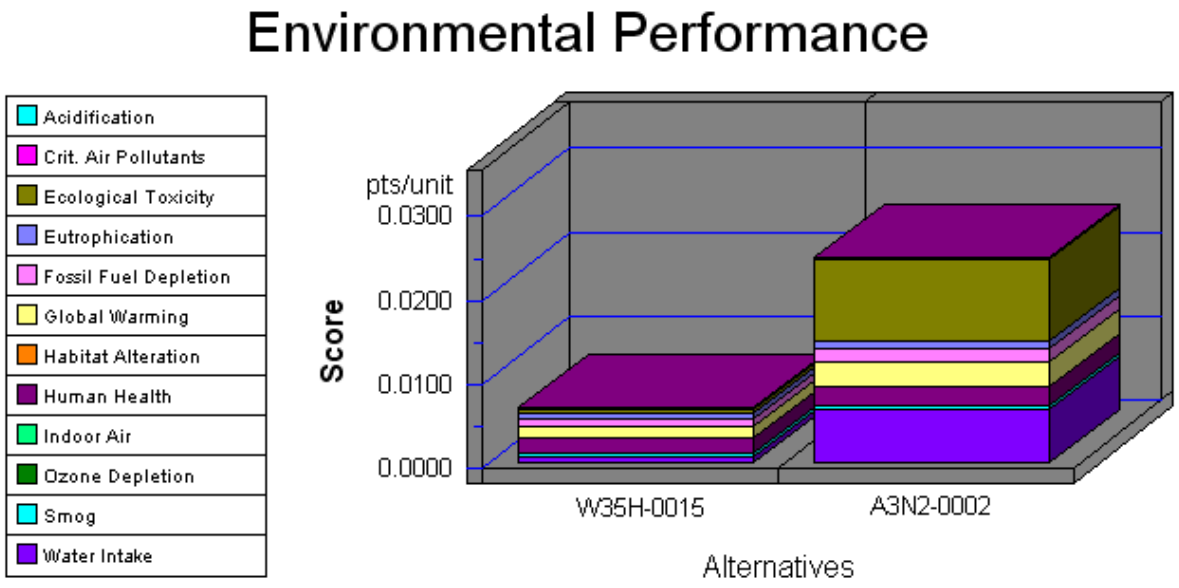
Appendix A - Biobased Content Data



	Companies Identified	Products Identified	C14	BEES
1	K773	K773-0006	52	
2	K773	K773-0005	56	
3	W35H	W35H-0014	60	
4	W35H	W35H-0015	70	Yes
5	K773	K773-0007	71	
6	A3N2	A3N2-0004	71	
7	W35H	W35H-0016	73	
8	A3N2	A3N2-0002	75	Yes
9	W35H	W35H-0017	79	

Appendix B - BEES Analysis Results

Functional Unit: 300,000 sq. in. of paper coverage



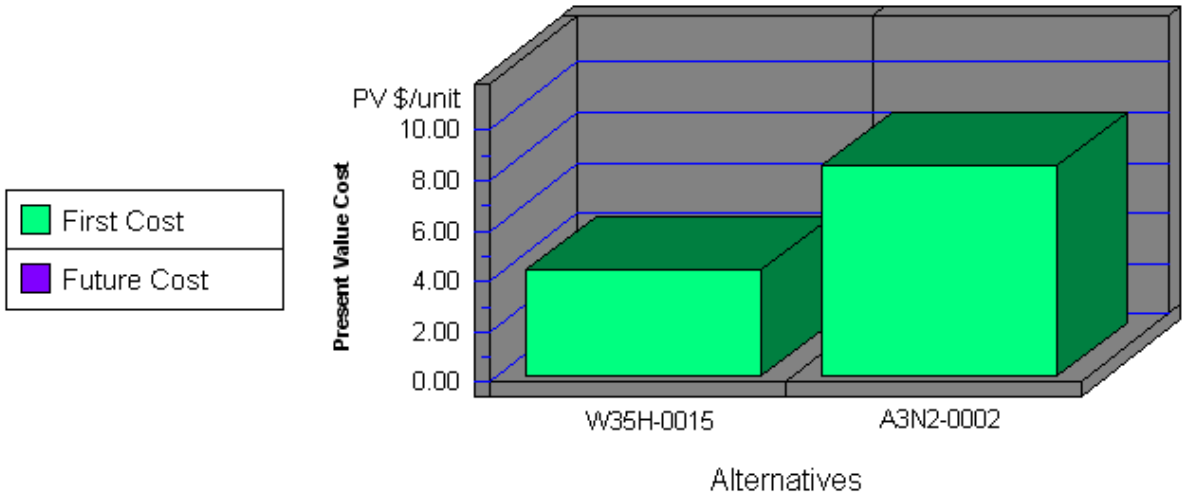
Note: Lower values are better

Category	W35H-0015	A3N2-0002
Acidification--3%	0.0000	0.0000
Crit. Air Pollutants--9%	0.0001	0.0001
Ecolog. Toxicity--7%	0.0005	0.0097
Eutrophication--6%	0.0007	0.0009
Fossil Fuel Depl.--10%	0.0008	0.0016
Global Warming--29%	0.0014	0.0030
Habitat Alteration--6%	0.0000	0.0000
Human Health--13%	0.0018	0.0022
Indoor Air--3%	0.0000	0.0000
Ozone Depletion--2%	0.0000	0.0000
Smog--4%	0.0004	0.0005
Water Intake--8%	0.0009	0.0064
Sum	0.0066	0.0244

Inks - Sheetfed			
Impacts	Units	W35H-0015	A3N2-0002
Acidification	millimoles H^+ equivalents	9.98E+02	9.64E+02
Criteria Air Polutants	microDALYs	2.24E-01	2.63E-01
Ecotoxicity	g 2,4-D equivalents	5.90E+00	1.14E+02
Eutrophication	g N equivalents	2.25E+00	2.77E+00
Fossil Fuel Depletion	MJ surplus energy	2.87E+00	5.59E+00
Global Warming	g CO_2 equivalents	1.25E+03	2.61E+03
Habitat Alteration	T&E count	0.00E+00	0.00E+00
Human Health--Cancer	g C_6H_6 equivalents	1.16E+00	1.39E+00
Human Health--NonCancer	g C_7H_8 equivalents	1.25E+03	1.40E+03
Indoor Air Quality	g TVOCs	0.00E+00	0.00E+00
Ozone Depletion	g CFC-11 equivalents	2.46E-07	4.11E-07
Smog	g NO_x equivalents	1.50E+01	1.78E+01
Water Intake	liters of water	5.90E+01	4.21E+02
Functional Unit	----------	300,000 sq. in. paper coverage	

1 Following are more complete descriptions of units: Acidification: millimoles of hydrogen ion equivalents; Criteria Air Pollutants: micro Disability-Adjusted Life Years; Ecological Toxicity: grams of 2,4-dichlorophenoxy-acetic acid equivalents; Eutrophication: grams of nitrogen equivalents; Fossil Fuel Depletion: megajoules of surplus energy; Global Warming: grams of carbon dioxide equivalents; Habitat Alteration: threatened and endangered species count; Human Health-Cancer: grams of benzene equivalents; Human Health-NonCancer: grams of toluene equivalents; Indoor Air Quality: grams of Total Volatile Organic Compounds; Ozone Depletion: grams of chloroflourocarbon-11 equivalents; Smog: grams of nitrogen oxide equivalents; and Water Intake: liters of water.

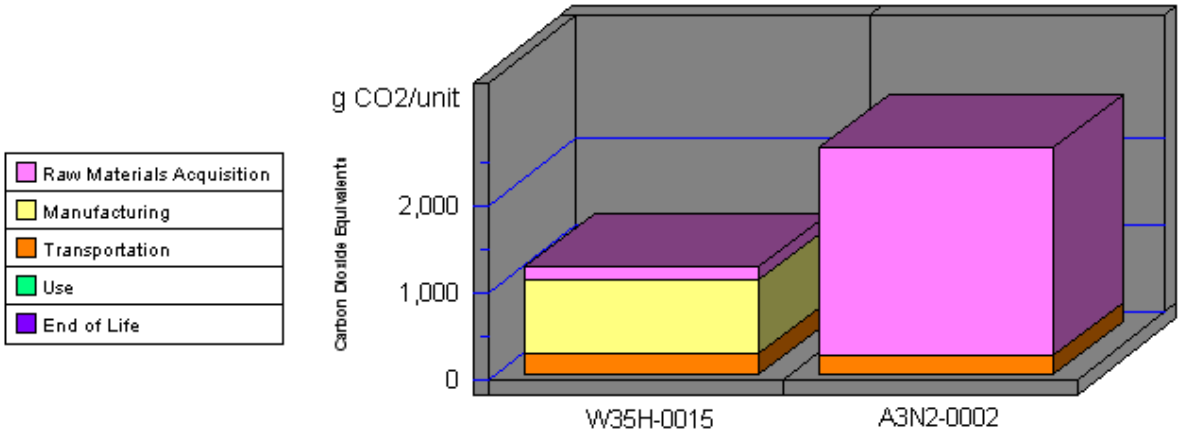
Economic Performance



Category	W35H-0015	A3N2-0002
First Cost	4.25	8.35
Future Cost-- 3.0%	0.00	0.00
Sum	4.25	8.35

*This is a consumable product. Therefore, future costs are not calculated.

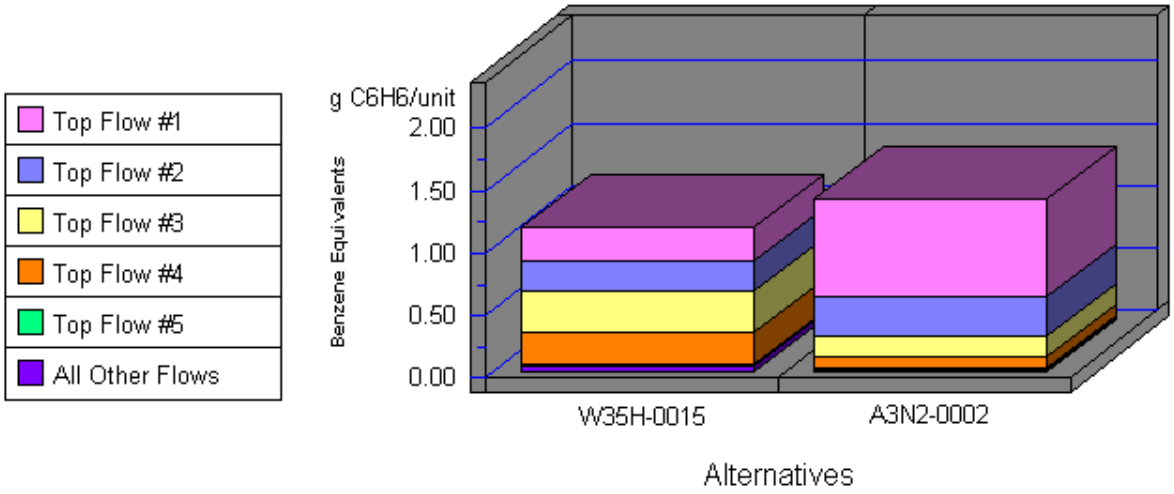
Global Warming by Life-Cycle Stage



Note: Lower values are better

Category	W35H-0015	A3N2-0002
1. Raw Materials	154	2389
2. Manufacturing	855	2
3. Transportation	239	220
4. Use	0	0
5. End of Life	0	0
Sum	1248	2611

Human Health Cancer by Sorted Flows*

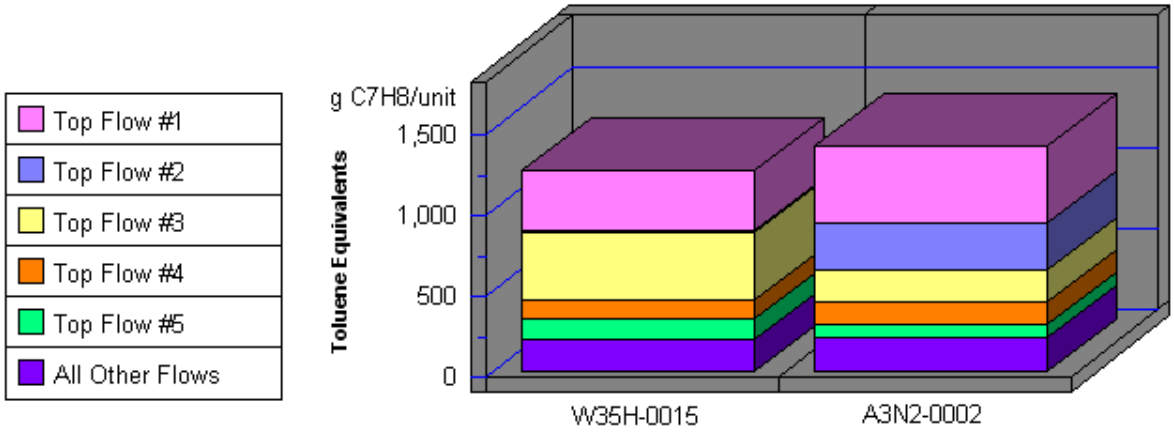


Note: Lower values are better

Category	W35H-0015	A3N2-0002
Cancer--(w) Phenol (C6H5OH)	0.26	0.78
Cancer--(w) Arsenic (As3+, As5+	0.24	0.33
Cancer--(a) Dioxins (unspecifie	0.33	0.15
Cancer--(a) Arsenic (As)	0.26	0.09
Cancer--(a) Benzene (C6H6)	0.01	0.01
All Others	0.05	0.02
Sum	1.16	1.39

*Sorted by five topmost flows for worst-scoring product

Human Health Noncancer by Sorted Flows*



Note: Lower values are better

Category	W35H-0015	A3N2-0002
Noncancer--(a) Mercury (Hg)	369.35	480.97
Noncancer--(w) Mercury (Hg+, Hg	15.97	289.06
Noncancer--(a) Dioxins (unspeci	419.79	194.26
Noncancer--(w) Barium (Ba++)	109.13	141.74
Noncancer--(a) Lead (Pb)	134.10	85.02
All Others	200.45	211.62
Sum	1,248.78	1,402.67

*Sorted by five topmost flows for worst-scoring product